

## REMARKS

Claim 1 has been amended to incorporate features of claim 23. Specifically, claim 1 was amended to specify that at least part of the leach liquor that remains after separation of the titanyl sulfate from the leach liquor is used either to form part of the leach liquor of step (a) or to form part of the leach liquor in a further leach step, e.g., the further leach step recited in claim 5.

Previous claims 1-29 were rejected as being anticipated or unpatentable in view of US 4,288,418 to Davis. In view of the present amendment, the claims distinguish over the process taught by Davis. While the Examiner admits that Davis does not teach "separating titanyl sulfate from the leach liquor", the Examiner argues that the effect of the Davis process (which crystallizes iron sulfate from the leach liquor to provide a leach liquor containing titanyl sulfate) and the claimed process are the same. Applicants cannot agree with this conclusion. As the Examiner will appreciate, the leach liquor contains not only free acid, Ti, and Fe but also, Mn, Cr, V, Ni, Si, Ca, Mg, Zn, Cu, Th, and U. According to the teachings of Davis, a portion of the Fe is removed leaving a solution containing free acid, Ti, and trace elements from the ilmenite such as Mn, Cr, V, Ni, Si, Ca, Mg, Zn, Cu, Th, and U (col. 8, lines 14-35). This remaining solution is then subjected to hydrolysis to hydrolyze the  $\text{TiOSO}_4$ . But, because the Davis solution contains one or more of Mn, Cr, V, Ni, Si, Ca, Mg, Zn, Cu, Th, and U, which are known contaminants, the  $\text{TiO}_2$  resulting from hydrolysis is necessarily contaminated.

On the other hand, in the claimed process, titanyl sulfate is separated from the leach liquor, which necessarily means that the titanyl sulfate is separated from trace elements in the leach liquor. As a result, the  $\text{TiO}_2$  resulting from the claimed process is

less contaminated than that of Davis. This is a result that differs from that taught by Davis.

Moreover, claim 1 has been amended to require that the leach liquor remaining after separation is used either to form part of the leach liquor of step (a) or to form part of the leach liquor in a further leach step. While Applicants appreciate that Davis teaches recycling a solution after filtration of the hydrolysis step, that solution of Davis differs from that being used in the claimed process. For example, as taught by Davis, hydrolysis is achieved by diluting the solution to be hydrolyzed with water, which will necessarily reduce the acid strength of the solution being recycled, particularly when compared with the solution prior to hydrolysis. On the other hand, in the claimed process, the leach liquor remaining after separation of the titanyl sulfate and being used will have an acid strength greater than that of Davis.

In view of these substantial differences, Applicants submit that the Examiner's premise that the effect of the Davis process and the claimed process is the same. Since the premise fails, the conclusion fails. Therefore, the claims are patentable over Davis and Applicants request notification to that effect.

Claim 29 was also rejected under 35 U.S.C. 103(a) as being unpatentable over Collins or Holle. In essence, it is contended that Collins and Holle each suggest the instantly claimed hydrated titanium oxide having the instantly claimed particle size.

As an initial matter Collins describes a process for preparing gels and spherules rather than coarse particles (see col. 1, lines 12-20). Moreover, Collins does not teach or suggest any of leaching a titaniferous material with sulfuric acid, forming a leach liquor that includes an acidic solution of titanyl sulfate and iron sulfate, thereafter

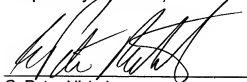
separating titanyl sulfate from the leach liquor and thereafter hydrolysing the titanyl sulfate to form the claimed coarse particles. Because Collins does not teach or suggest a process that is identical or substantially identical to the claimed process, there can be no suggestion that Collins teaches the claimed hydrated titanium oxides in the form of coarse particles of at least 0.005 mm.

As for Holle, it too does not teach or suggest separating titanyl sulfate from the leach liquor and thereafter hydrolysing the titanyl sulfate to form the claimed coarse particles of at least 0.005 mm. Instead, Holle teaches decomposition of titanium raw materials using sulphuric acid, hydrolysis of the decomposing solution, and filtration of the hydrolysate. Because Holle does not teach or suggest a process that is identical or substantially identical to the claimed process, there can be no suggestion that Holle teaches the claimed titanium oxides. Therefore, the rejection should be withdrawn.

With respect to the obviousness-type double patenting rejections, they will be addressed upon notification that the present claims are allowable. It is believed that all the claims are in condition to be allowed.

The Examiner is invited to contact the undersigned at (312) 321-4276 if such communication would expedite allowance of this application.

Respectfully submitted,



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